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THEY CALL IT PHOTOPERIODISM

Radio talk by Gove Hambidge, Coordinator of Research Publications, Agricultural Research Administration. Recorded July 7, 1945. Time: 5 minutes and 19 seconds without announcer's parts.

TRANSCRIPTION:

GOVE HAMBIDGE: On Wednesday, July 10, Nineteen Hunder and Eighteen, The Washington Evening Star carried the big heading: "ENEMY PREPARES TO HIT AMERICANS." It was a tense time in World War One. The German Armies were along the Marne. They were at Belleau Wood. They were at Chateau-Thierry, just 59 miles from Paris. And Ludendorff's great attack opening the Second Battle of the Marne was already in motion...ready to strike the next Monday.

It was a tense time.

On that same Wednesday, July 10, 1918, at 4 o'clock in the afternoon, a scientist over at the Arlington Agricultural Experiment Station was doing a very curious thing. There, in a quiet spot between the Potomac River and Arlington Cemetery, he was putting some soybean plants and three tobacco plants into...what you might have thought was a rather small, dark chicken house.

He was just trying to see what would happen.

Actually, he also was making history.

A week and a day later, Marshal Foch gained the initiative...with an offensive that one historian describes as...the "first taste of victory after deep and bitter draughts of defeat."

And so did the scientists. (For there were two of them who together had planned this experiment.)

After a dozen years of many bitter disappointments they had at last gained the initiative. They had tasted success, and by the time the world was debating the Treaty of Versailles, their report also was receiving world-wide attention in scientific circles. When a famous German plant physiologist received that long scientific report describing this experiment, he sat up all night reading and studying it.

These two scientists—W. W. Garner and H. A. Allard—had discovered a fundamental law of nature. And you don't discover a fundamental law of nature every day.

When they put those plants in that crude dark chamber on July 10, 1918, they were trying to find the answers to two questions that had puzzled them for years. Why would soybeans planted at different times all bear seeds at the SAME time? And why would certain tobacco plants grow mammoth leaves in Maryland but not bloom and go to seed? Why did tobacco seed have to be produced by growing the plants in greenhouses in the winter?

After many years of trying everything else, Garner and Allard finally wondered what would happen if they made a summer day as short as the days when the soybeans always matured. And what would happen if the daylight for the tobacco plants were as brief as it is in winter?

So at 4 o'clock each day, they put the plants in the dark. And at 9 o'clock the next morning they took the plants out. These plants had a 7-hour day in July.

AND -- THEY WENT TO SEED.

That was the answer. Scientists for the first time in history had begun to understand that day length makes a fundamental difference to many plants. Garner and Allard found a new law of Nature: Many plants can produce seed—and that means flowers and fruit—only when they have the right length of day.

Two years ago, and again this year, spring rains delayed the planting of some mighty important soybean crops — delayed it seriously. Could a crop be grown. Garner and Allard's discovery helped answer this question.

The answer was: Yes, try it. Farmers were advised to guard against weather damage in fall, but to plant the soybeans. A delay of even 3 weeks in soybean planting would postpone the harvest only 1 week. It might be a poorer crop, but there would be beans, and we need all the soybeans we can get.

The secret back of that answer is: Soybeans are short-day plants. That is, they would bloom and mature when the days got short enough, even if they were planted late.

And so, in many ways, knowing about the day-length requirements of crops helps solve practical problems. Florists can stretch the day with electric lights in their greenhouses and produce flowers at the best time for selling them. Plant breeders can make new crosses by getting different species to flower at the same time. Plant explorers have a better understanding of what crops in a foreign country will do well in certain parts of our own country. Farmers have a new guide to help them choose crops and varieties suited to the regions where they live.

Garner and Allard called this newly discovered phenomenon...photoperiodism... which means reaction to a period of light. In the midst of a world war, they quietly made a fundamental discovery and opened up an entirely new field of research—a field of research that is still being explored. And with very interesting results. But that is another story.

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ANNOUNCER'S OPENING AND CLOSING

OPENING

ANNOUNCER (LIVE): "FARM SCIENCE SERVES THE NATION." And Gove Hambidge serves YOU, by bringing you authoritative, interesting reports on...what science does. Mr. Hambidge--speaking for the United States Department of Agriculture's Research Administration--now takes over as spokesman in a series of transcriptions from Washington on...research for agriculture. "FARM SCIENCE SERVES THE NATION." Mr. Hambidge.

CLOSING

ANNOUNCER (LIVE): You have just heard Gove Hambidge bringing you another in the series of transcriptions from Washington, D. C., on research in agriculture. Gove Hambidge, speaking for the U. S. Department of Agriculture's Research Administration tells you how Farm Science Serves the Nation.

And incidentally, if that soybean problem is bothering you...if you are worried about a late harvest this year, you can get a free folder from the U. S. Department of Agriculture in Washington called "Save Weather-Damaged Soybeans: Our Country Needs This Crop." This folder was prepared for use in 1943, but the information it contains is as good now as it was then. "Save Weather-Damaged Soybeans" is a free folder from the U. S. Department of Agriculture, Washington, D. C.

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